

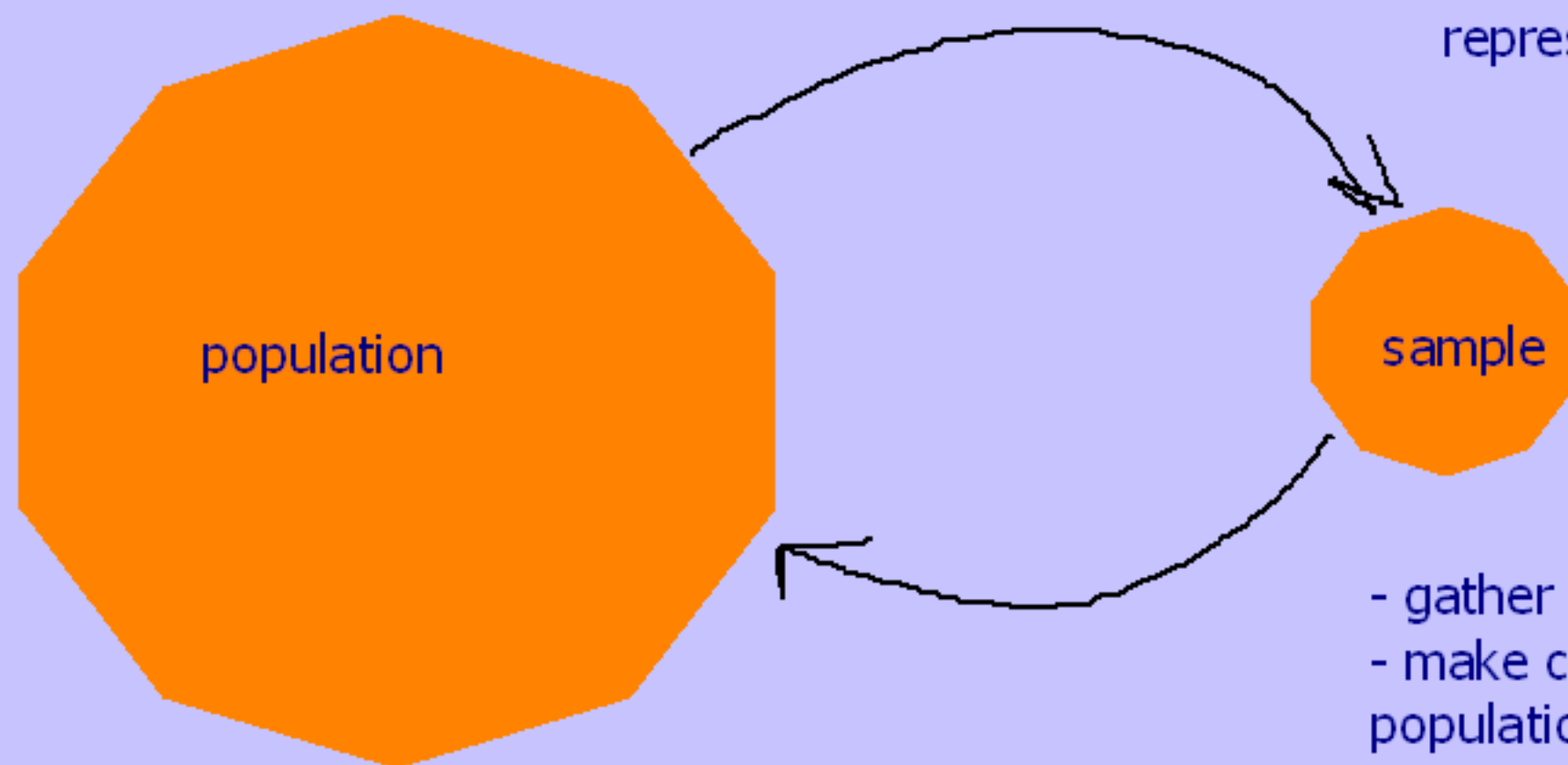
## Some Introductory Statistics Vocabulary...

### Population versus Sample

Population - All of a certain group

Sample

- A small section of the population
- can be good or bad representation of the pop.



- gather data from sample
- make conclusions about population

## Data.....what does it consist of?

Individuals:

The objects described by a set of data

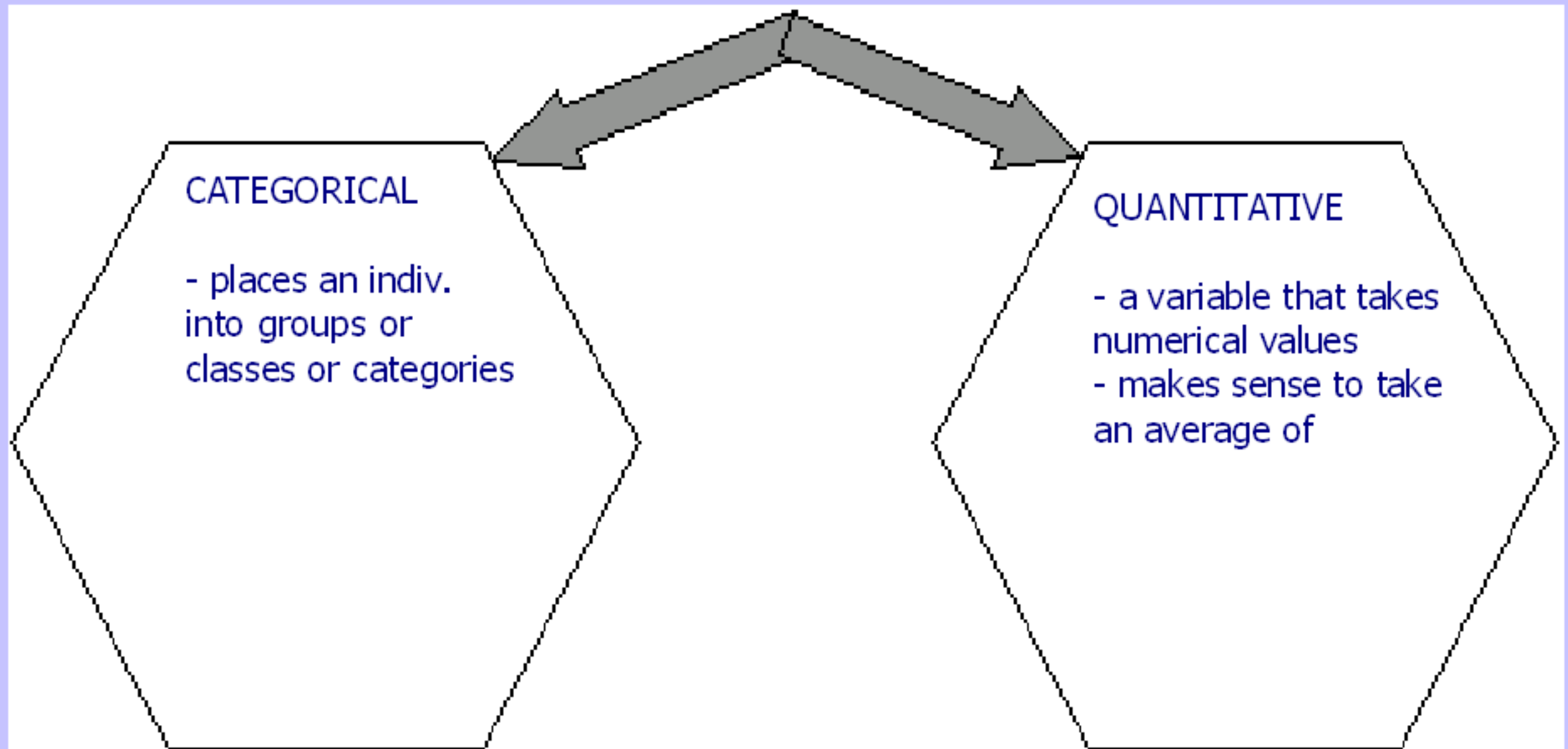
Ex: Colleges, cars, students, plants, dogs, etc.



Variables:

- characteristic of an individual
- something we measure about the individual
- different values for different individuals

# Variables:

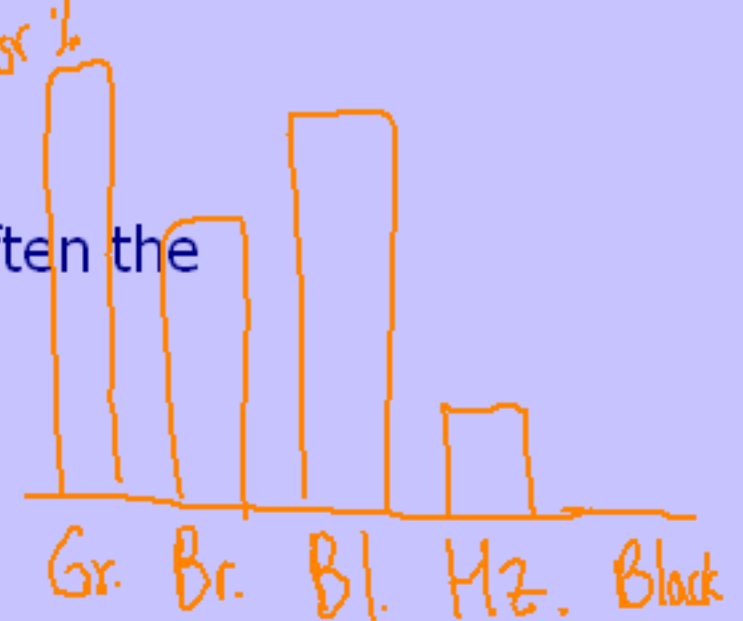


## EXAMPLE: Variables about college

class size	avg.	Q
majors	#	Q
location		C
distance,	miles from home	Q
tuition	\$\$\$\$	Q
clubs/sports	#	Q
private/public		C
division		C
faculty mem.		Q

## Distribution (of a variable)-

- Shows all the different values of the variable and how often the variable takes those values
- Examples: histogram, stemplot, bar chart, etc.



## Exploratory Data Analysis-

- Uses graphs, distributions, numerical summaries to describe a set of data
- We will do this for Ch. 1-5 in the book

averages, Med.  
min, max  
std. dev %

\* \*\*SECOND PART OF THE COURSE: INFERENCE  
Inference (to infer something)-

Ch. 6-10

educated guess based on data w/ certainty

Input your data on the side board by putting a tally mark next to where you fit

**HAIR COLOR**

Blond

Brown

Black

Red

Mixed

**EYE COLOR**

Blue

Green

Brown

Hazel

Mixed

Other

**ZIP CODE**

18976

18901

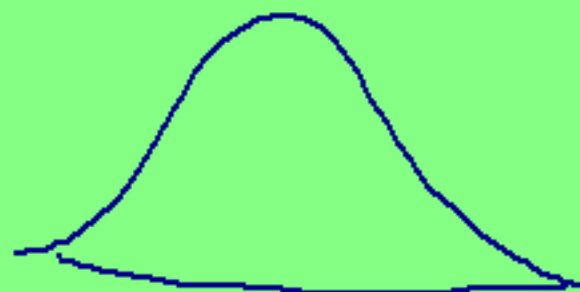
Other

AP Stat  
Section 1.1- Notes

**Graphs/Distributions:**

Which ones will we do?

- **Bar chart**
- **Pie chart**
- **stem plot**
- **dotplot**
- **histogram**
- **boxplot**
- **smooth curves**



## Categorical Distributions:

### 1. Bar Graph

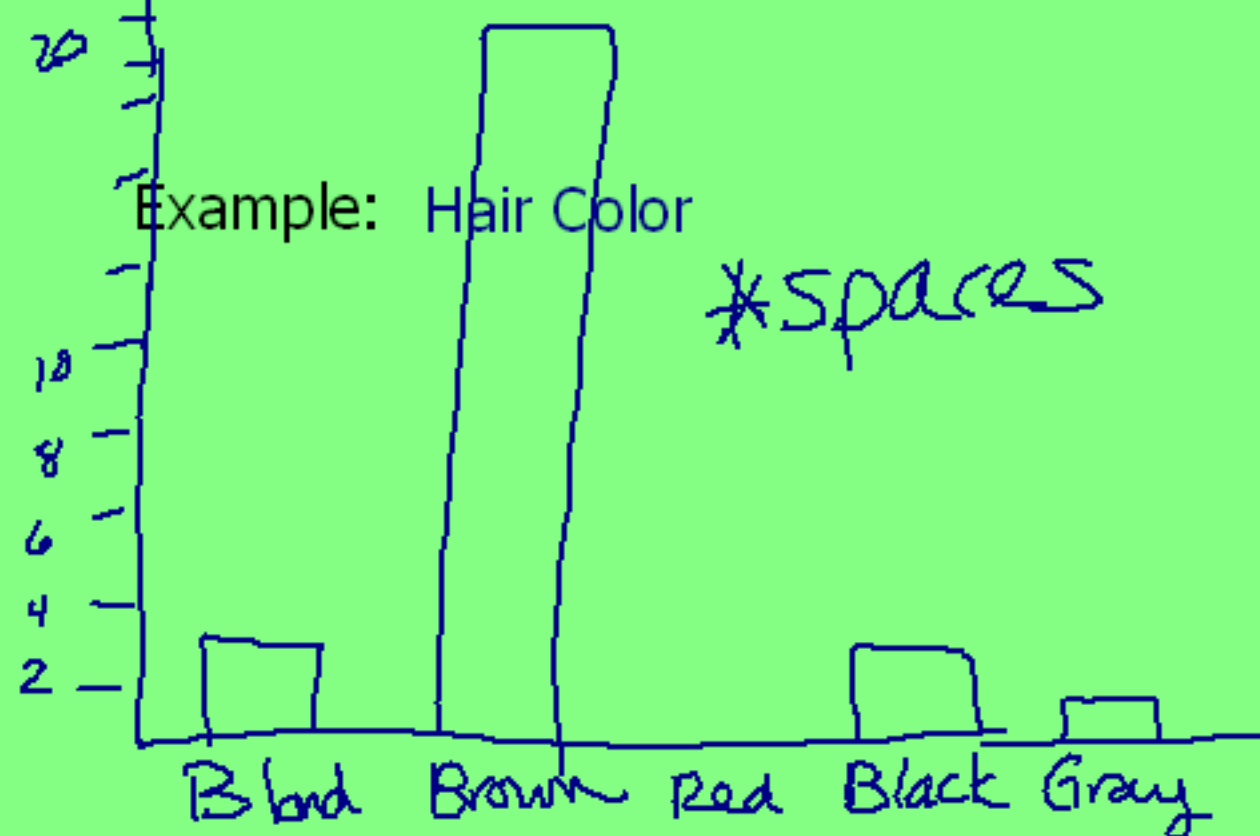
X-Axis => categories/values of the variable

Y-Axis => count = # = frequency

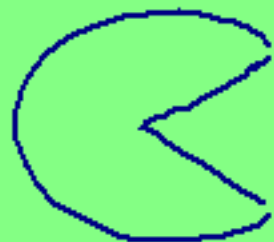
OR

% = relative frequency

freq.  
#



### 2. Pie Chart



- shows all parts of a whole
- shows only % or relative frequency
- find % of each category, then sketch graph

Example: Eye Color





## Quantitative Distributions:

### 1. Stemplot (aka Stem and Leaf Plot)

- Separate... each observation into a stem and leaf last digit
- Write... stems in order (small to large) vertically, with a line to the right
- Write... leaves in the row to the right of the stem in order

Example 1:

Babe Ruth's homerun totals each season for the Yankees:

~~54, 59, 35, 41, 46, 23, 47, 60, 54, 46, 49, 41, 34, 22~~ 102

Create a stemplot:

Babe Ruth  
HRs

2		2	5
3		4	5
4		1	1 6 6 7 9
5		4	4 9
6		0	

102  
115  
009

Example 1: Babe Ruth's homerun totals each season for the Yankees:

~~54, 59, 35, 41, 46, 25, 47, 60, 54, 46, 49, 41, 34, 22~~

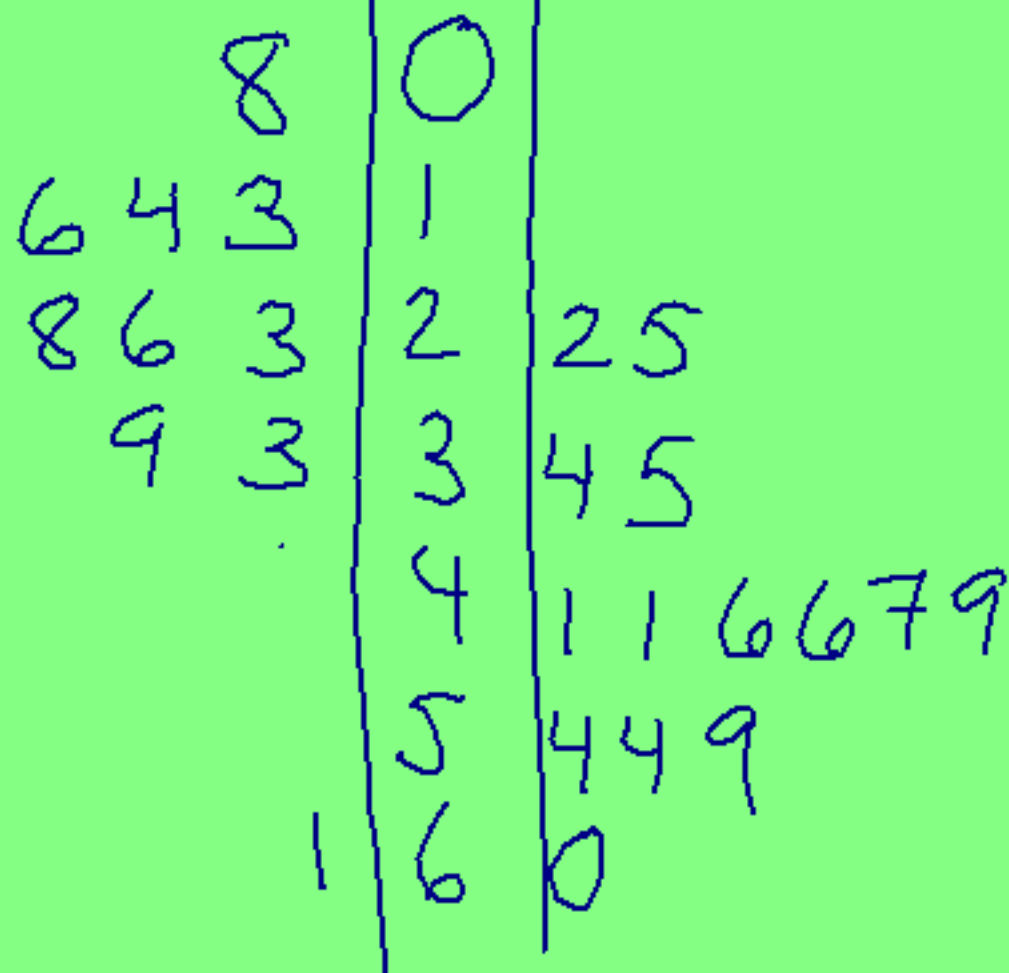
Example 2: Roger Maris' homerun totals for the Yankees:

~~8, 13, 23, 33, 28, 16, 14, 39, 26, 61~~

Create a Back-to-Back stemplot

Roger Maris

Babe Ruth



### Splitting Stems:

**When?** when observations are clumped on only one or a few stems

### In what ways can the stems be split?

- 2 stems for every 10 digits
- 5 stems for every 10 digits
- 10 stems for every 10 digits

**Example 3:** Age guesses      1 stem for every 1 digits:

## BLOCK 1 & 2

[illegible]

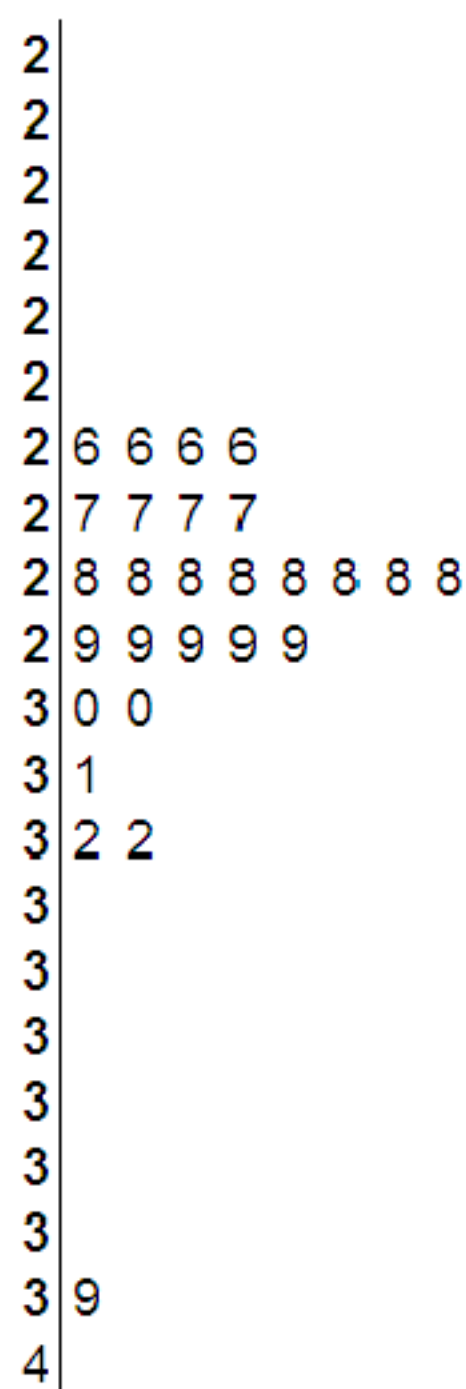
2 stems for every 10 digits:

[illegible]



### *Age guesses*

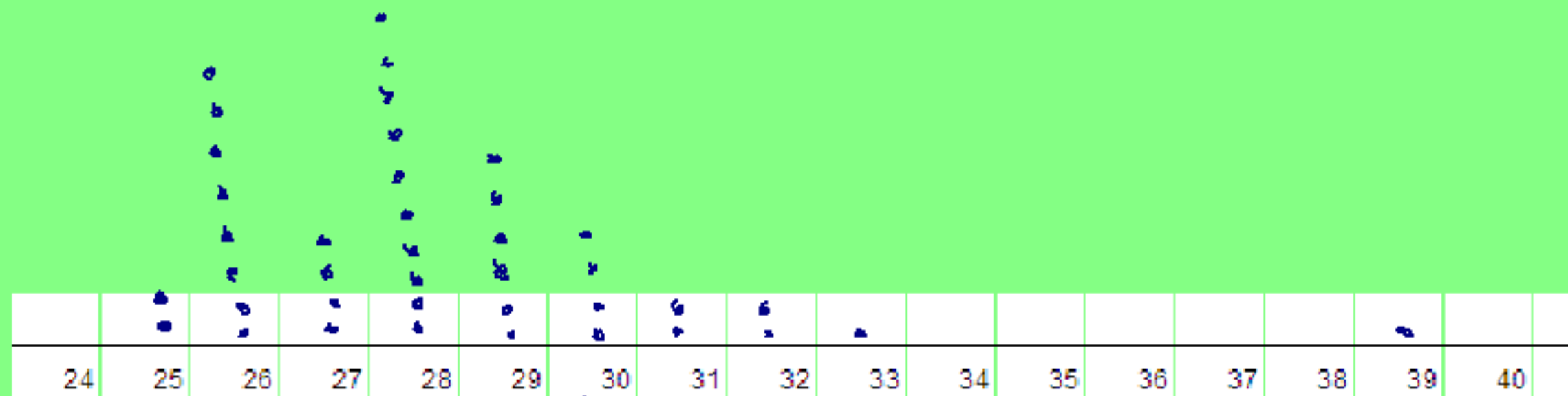
## Block 2



## 2. Dotplot

- Each... value of the variable is placed on the horizontal axis
- *Every time...* you observe a value, you put a dot above it on the plot in a vertical line
- *Better for...* smaller sets of data

Example 1: Age Guesses

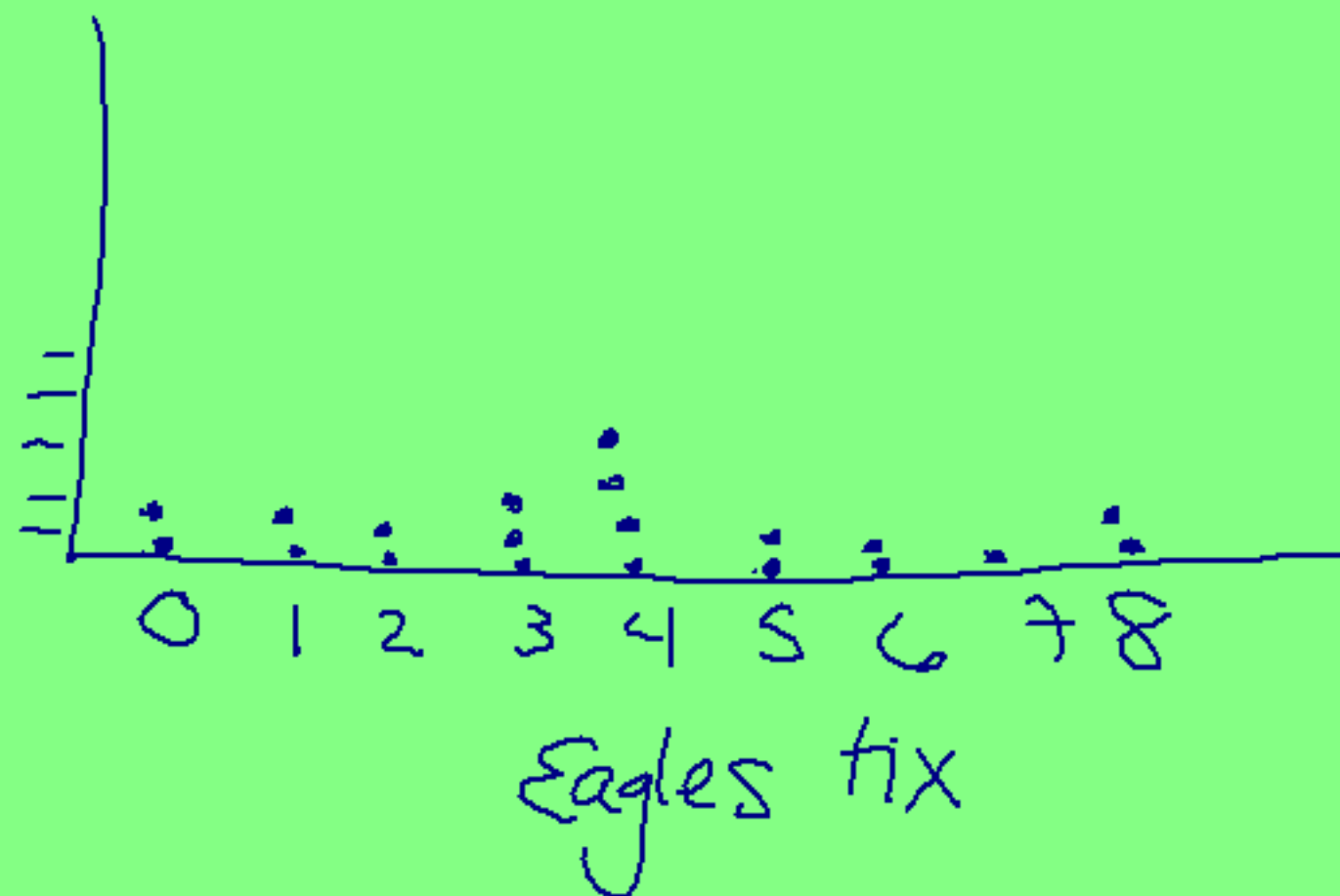


Age Guesses

Example 4: Below are the number of Eagles tickets bought per buyer during a 1 hour period on ticketmaster.com:

~~8, 5, 0, 7, 1, 4, 4, 0, 2, 1, 4, 5, 3, 0, 8, 4, 3, 2, 6, 3~~

Create a dotplot





- Please take a look at the sheet entitled:  
Inputting and working with lists
- Please find a partner, get out your calculators, and  
come get a link off the front table
- Please complete the worksheet

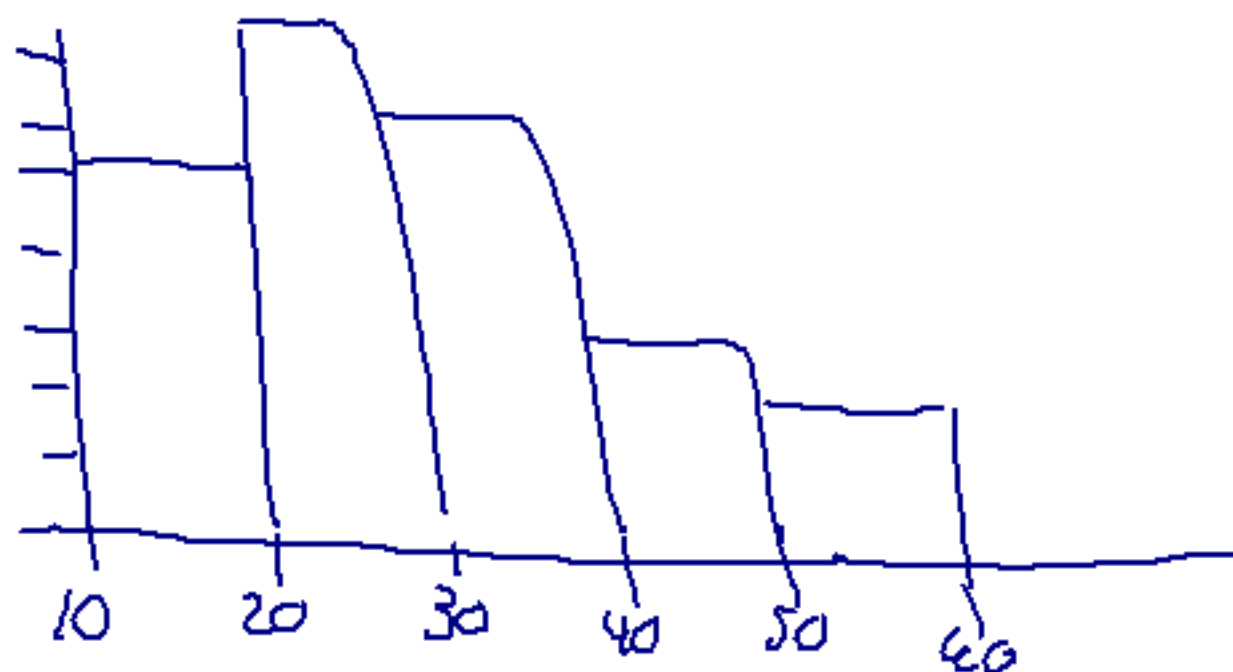
**\*\* Please get the list TEST from one of my calculators on the front desk**

**OR**

**get the list from someone who has already gotten it from my calculators**

1 | 2 3 3 4 5 5 6  
2 | 1 1 1 2 3 5 ...  
3 |  
4 |  
5 |

#



### 3. Histogram

- *Take...* data and split into equal classes/groups
  - o *Understand* your data
  - o *Choose* logical classes
  - o *Classes* can't overlap
- *Count...* # of observations in each class. This is the height of the bar for that class
- *Create...* bars for each class
  - o *X-axis:* classes/groups

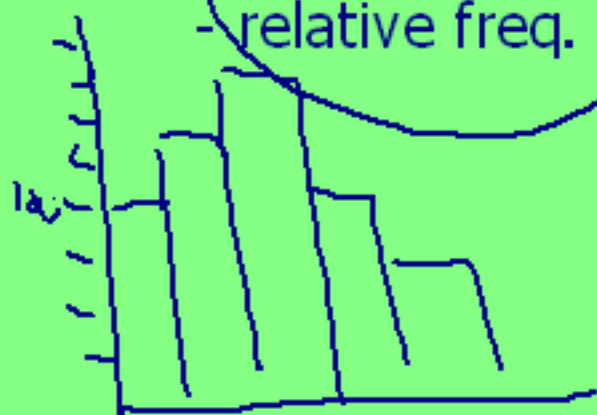


*Y-axis:*

frequency #  
relative freq.

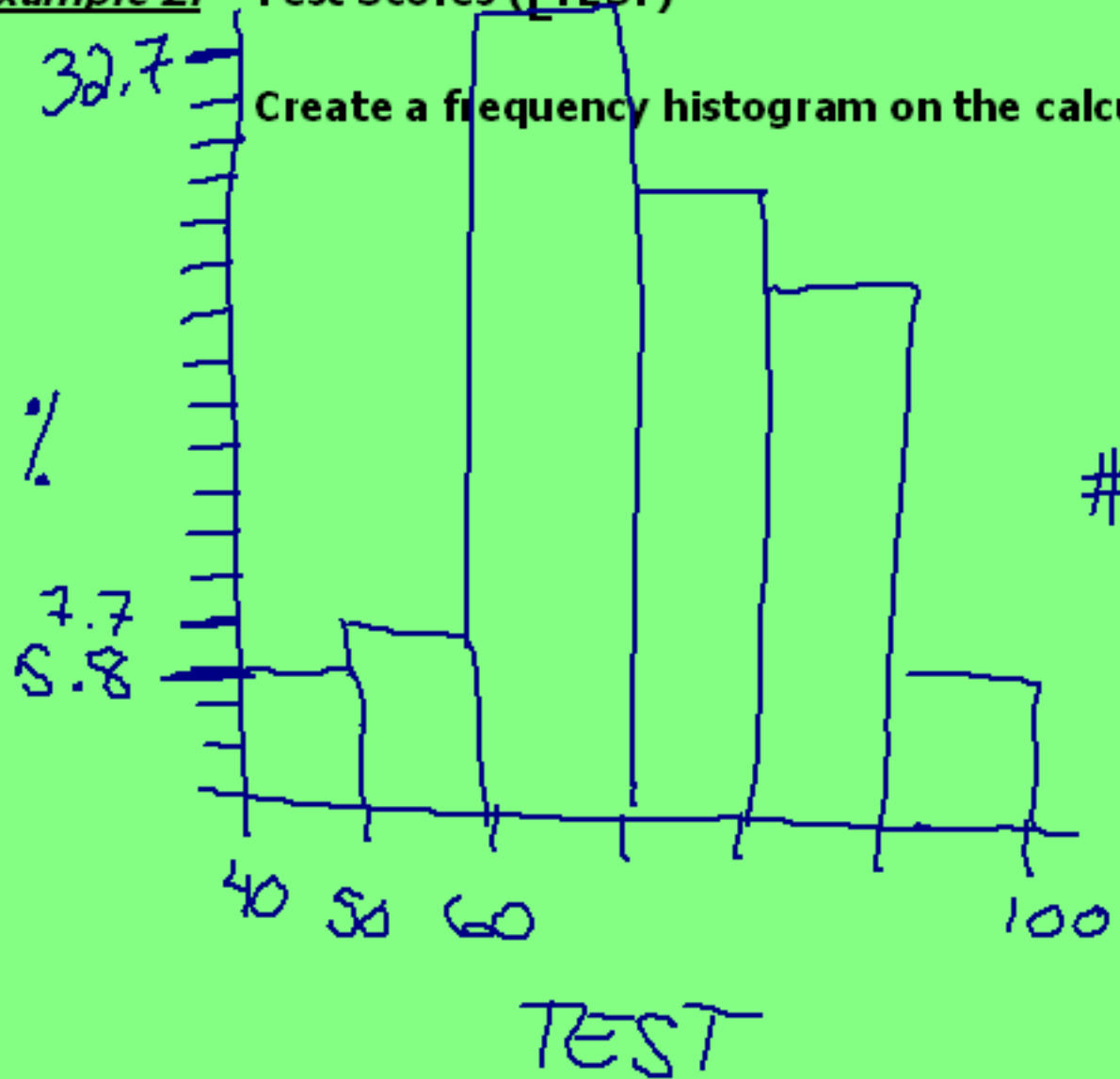
cumulative frequency  
cumulative relative freq.

add up as we go along

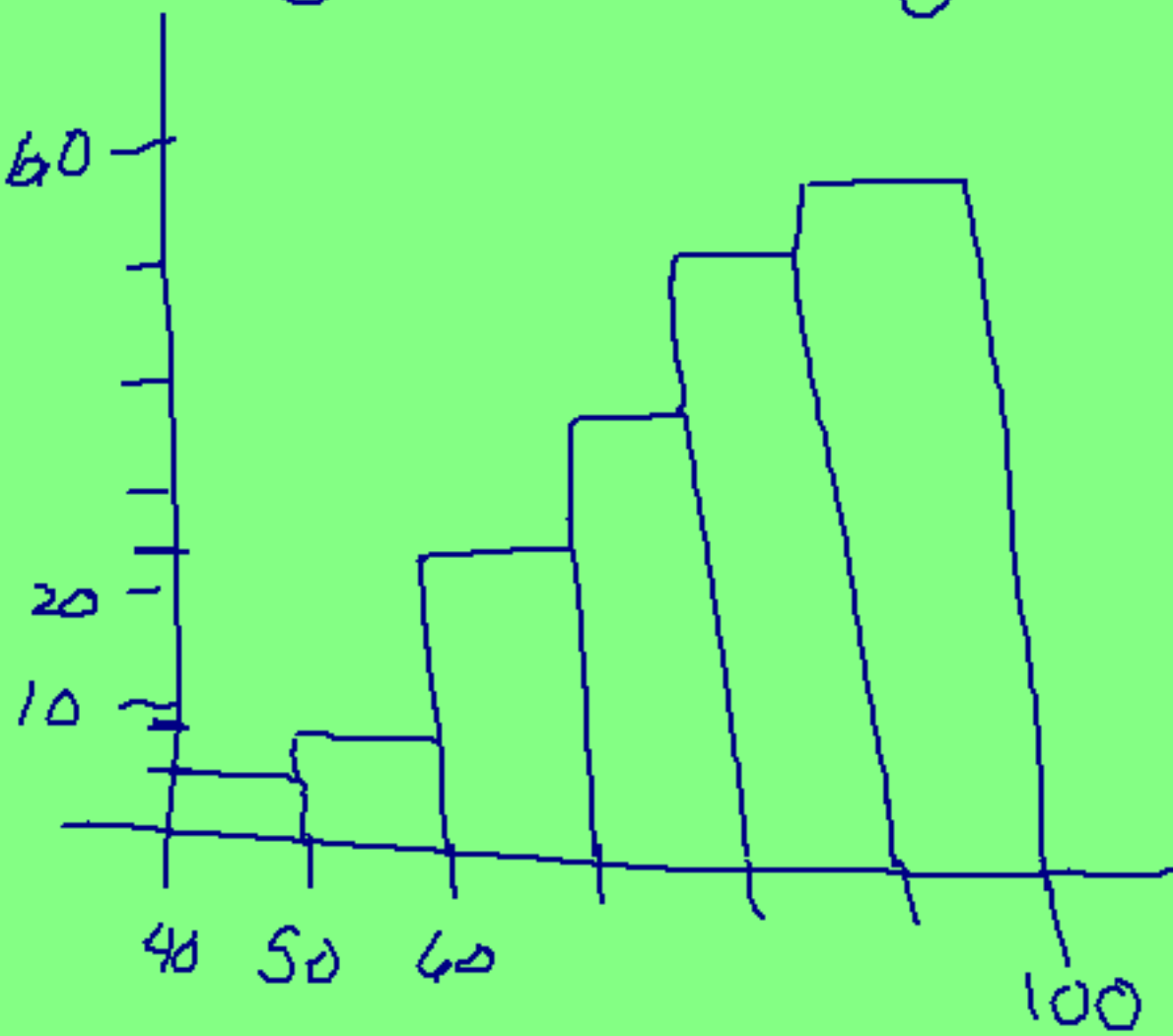


Example 2: Test Scores (TEST)

Create a frequency histogram on the calculator



cumulative freq.



### Creating other types of histograms:

Using a chart is very helpful when creating the other types of histograms:

\* Use the list TEST that you transferred

Class/Group	Frequency	Relative Frequency %	Cumulative Frequency	Cumulative Relative Freq.
40-50	3		3	
50-60	4		7	
60-70	17		24	
.	.		.	
.	.		.	
.	.		.	
.	.		.	
.	.		.	
.	.		.	
.	.		.	
Total:				

**\*\* Now complete the histogram example worksheet**

## Comparison:

### Stemplots

- intervals determined by our # system
- shows all data points
- tedious for large data sets
- shows only frequency

### Histograms

- classes determined logically
- doesn't show all data points
- easier to create
- shows both freq. and relative freq.